

Amendments to the Abstract:

Please replace the Abstract with the following amended Abstract:

The invention provides a A system for diagnosing degradation of a plurality of wires in an electrical system having a plurality number of loads connected by the ~~plurality of wires~~ to a direct current power source, the ~~plurality of wires~~ arranged into a bundle near the power source. The system comprises includes a current sensor located proximate to the bundle for producing a signal representative of a current in the bundle, a signal processor coupled to the sensor to receive the signal from the current sensor, a pattern database coupled to the signal processor to provide the signal processor with expected patterns of currents drawn by the plurality number of loads and patterns of arcs which may occur in the ~~plurality of~~ wires, and, an output device coupled to the signal processor to receive an indication of a location at which an arc occurred in the ~~plurality of~~ wires.